NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET

(pursuant to NAC 445A.236)

Permittee Name: Panaca Farmstead Association
P.O. Box 597
Panaca, NV 89042-0597

Permit Number: NEV87045

Location: Panaca town limits (east end), south of State Route 319
Latitude: 37° 47' 20"N, Longitude: 114° 22' 40"W
Township 2S, Range 68E, Section 9, Lincoln County, Nevada

Wellhead Protection

The Panaca Farmstead Association wastewater treatment facility (WWTF) is located at the edge of the 7000 foot buffer around the Panaca public water supply wells. The WWTF is downgradient and across Meadow Valley Wash from the supply wells. In addition, the Panaca Farmstead water supply wells are completed in a confined aquifer below approximately 60 feet of tight blue clay (Division of Water Resources well log 2148). It is not expected that the WWTF will significantly impact the water supply.

General:

Panaca Farmstead Association provides sewer service to 378 connections in the town of Panaca, which has a population of approximately 700. The wastewater influent is entirely domestic; there are no industrial connections. The topographical low spot in town is on the west side and all wastewater flows by gravity to a lift station located at this end of town. From the lift station, wastewater is pumped to the treatment and disposal ponds, located approximately one mile east of the lift station, due south of State Route 319. According to facility records, the ponds were first put into service in 1972. Division records indicate that the first permit was issued in January, 1988.

Wastewater is treated in three (3) clay-lined facultative ponds, arranged in series flow. All three treatment ponds have maximum operating depths of 4 feet and maximum surface areas of 1.2 (pond #1), 1.0 (pond #2), and 1.4 acres (pond #3), respectively. Effluent is discharged into Pond 4 for disposal. Flow is measured by lift station pump timers. The ponds predate the Division's permitting program, and therefore, the hydraulic conductivity design specification of the original clay liners was not specified in Division records. An engineering assessment of this treatment system by Shaw Engineering in 1995 indicated that an average infiltration rate for ponds #1-3 was estimated at $1x10^{-6}$ to $1x10^{-5}$ cm/sec based on a water budget analysis. This value is higher than the Division's soil liner specification of $1x10^{-7}$ cm/sec.

Pond #1 operates in the partial-mix mode and is continually aerated by a 5-Hp aerator to minimize odors. Because of difficulty in meeting Total Suspended Solids (TSS) permit limits during the spring and summer months due to heavy algal growth, SPB Utilities has been working with this facility to improve effluent quality by cycling pond #3 out of service. In summer, warmer temperatures accelerate biological processes so that ponds #1-2 are sufficient to meet CBOD limits. After the effluent is polished in pond #2 (warmer months) or pond #3 (colder

months), treated effluent flows by gravity line to pond #4 (unlined) for groundwater percolation. Groundwater monitoring to assess impacts from effluent treatment and disposal is accomplished in well MW1, which was installed in 2004, and is monitored quarterly. MW1 is located 250 feet west of the discharge point into Pond 4.

Effluent Flow and Characteristics:

During the period from October 2002 through September 2006, the effluent discharged from the Panaca Farmstead WWTF had the following characteristics:

PARAMETER	PERMIT LIMIT	AVERAGE	MINIMUM	MAXIMUM
Flow (MGD)	0.10	0.0323	0.023	0.045
CBOD (mg/L)	30 Day Average: 30 Daily Maximum: 45	40.6	8	103
TSS (mg/L)	Daily Maximum: 90	92	16	168
pH (Standard Units)	6.0 to 9.0	8.38	7.18	8.9

Receiving Water Characteristics:

Treated effluent is discharged to the groundwater through percolation in disposal pond #4 and from infiltration (seepage) losses in ponds #1-3. According to Nevada Division of Water Resources records, well log data for two supply wells in the same section as the treatment facility indicate static water levels of 47 and 64 feet below ground surface (bgs) in wells screened from approximately 50-100 ft. bgs. Quarterly reporting of MW1 static water level indicates an average of 46.6 feet bgs. As stated in the permit application, and as indicated by the hydrology of Meadow Valley Wash, groundwater flow is to the southwest.

Groundwater sampled from MW1 is of good quality, with the following analytical analyses:

PARAMETER	PERMIT LIMIT	AVERAGE	MINIMUM	MAXIMUM
Total Dissolved Solids (mg/L)	Monitor & Report	265	230	330
Chlorides (mg/L)	Monitor & Report	22.5	18	44
Nitrate as N (mg/L)	10	0.83	0.4	1.3
Total Nitrogen (mg/L)	Monitor & Report	1.14	<1	1.6

The municipal supply wells for Panaca are located approximately 1¼ miles west and upgradient of the treatment and disposal facility. As stated, the supply wells are completed in a confined aquifer.

A seasonal wash is located immediately west of pond #4 and carries spring precipitation runoff to the Meadow Valley Wash (south southwest).

Proposed Effluent Limitations and Special Conditions:
The Panaca Farmstead WWTF and monitoring well MW1 shall be limited and monitored according to the following:

Table 1: Facility Discharge Limitations

PARAMETER		DISCHARGE LIMITATIONS		MONITORING REQUIREMENTS	
		30-Day Average	Daily Maximum	Measurement Frequency	Sample Type
Influent	Flow (MGD)	Monitor & Report	0.1	Continuous	Lift-Station time clocks
	CBOD (mg/L)	Monitor & Report		Quarterly	Discrete
	TSS (mg/L)	Monitor & Report		Quarterly	Discrete
Effluent	CBOD (mg/L)	30	45	Quarterly	Discrete
	TSS (mg/L)	Monitor & Report	90	Quarterly	Discrete
	pH (Standard. Units)	Between 6.0 & 9.0		Quarterly	Discrete

Table 2: Groundwater Monitoring (MW-1)

PARAMETER	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS	
		Measurement Frequency	Sample Type
Total Dissolved Solids (mg/L)	Monitor & Report	Quarterly	Discrete
Chlorides (mg/L)	Monitor & Report	Quarterly	Discrete
Nitrate as N (mg/L)	Monitor & Report	Quarterly	Discrete
Total Nitrogen as N (mg/L)	10.0	Quarterly	Discrete
Depth to Groundwater (feet)	Monitor & Report	Quarterly	Measurement
Groundwater Elev. (ft AMSL)	Monitor & Report	Quarterly	Calculation

Rationale for Permit Requirements:
The Division's rationale for the proposed monitoring conditions is as follows:

- *Flow*: Influent flow is tracked (i.e., lift station pump run-times) to ensure that the design capacity of the treatment facility is not exceeded.

- *CBOD*: The Division requires the monitoring of influent and effluent Carbonaceous Biochemical Oxygen Demand (CBOD or Inhibited BOD), as an indication of treatment performance in the ponds. The Division's secondary-treatment CBOD standards for ponds are 30 and 45 mg/L, respectively, for the 30-day average and daily maximum values, with 85% removal efficiency.

- *TSS*: The Division's secondary-treatment standard for Total Suspended Solids (TSS) in pond system effluent is 90 mg/L.

- *pH*: The Division requires the pond effluent to meet a pH standard of between 6.0 and 9.0 standard units, consistent with other regulated groundwater dischargers in Nevada.

- *Groundwater Monitoring*: The Division requires quarterly groundwater sampling for depth to groundwater, groundwater elevation, total dissolved solids (TDS), chlorides, nitrate as nitrogen, and total nitrogen parameters to ensure that State groundwater resources are not impacted from effluent percolation and pond seepage losses.

Schedule of Compliance:
The Permittee shall comply with permit limitations and requirements upon issuance. The Permittee shall submit the following items to the Division for review and approval:

- **By September 1, 2007**, the Permittee shall submit a copy of all revisions made to the facility's Operations & Maintenance (O&M) Manual since the last Permit renewal. If no revisions have been made, the Permittee shall so note in a signed letter.

Procedures for Public Comment:
The Notice of the Division's intent to issue (renew) a permit authorizing the facility to discharge secondary-treated effluent into groundwaters of the State, subject to the conditions contained within the permit is being sent to the **Lincoln County Record** and **Las Vegas Review-Journal** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of publication of the public notice in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline date and time by which all comments are to be submitted (via postmarked mail or time-stamped faxes, e-mails, or hand-delivered items) to the Division is **June 18, 2007 by 5:00 P.M.**

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator or any interested agency, person or group of persons.

The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination:

The Division has made the tentative determination to issue (renew) the proposed groundwater discharge permit for a period of five (5) years with specific requirements for conducting quarterly groundwater monitoring.

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